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**U.S. PATENT APPLICATION**

**Title: SANITARY WASTE PICKUP DEVICE**

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**Attorney Docket No.: 250p-Barr**

TITLE

SANITARY WASTE PICKUP DEVICE

INVENTOR

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FIELD OF THE INVENTION

This invention relates generally to animal waste pickup and specifically to animal waste pickup devices which may be used one-handed.

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STATEMENT REGARDING FEDERALLY FUNDED RESEARCH

This invention was not made under contract with an agency of the US Government, nor by any agency of the US Government.

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BACKGROUND OF THE INVENTION

This invention relates generally to animal waste pickup and specifically to animal waste pickup devices which may be used one-handed, on virtually any surface, and are sealed for indoor storage, and can be used more than one time without dumping.

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In the distant past, the best way to reach a leaf, paper, or waste dropped on the ground was to bend down and physically pick it up. The search for an easy way to remove objects on the ground with minimal effort has sparked the interest of many inventors, but an enabling device whereby a user can manipulate and retrieve an object without bending down, while not

having to come into physical contact with the object after retrieval, can be an elusive goal.

Several patents show some characteristics of manipulation and retrieval from a standing position.

For the typical pet owner, the situation has become exacerbated in recent years due to the nature of modern pet ownership. Most owners cannot allow their pets to roam free in a run or  
5 yard anymore. Instead, a daily or twice daily walk in the neighborhood or park is now the norm, and the pet is expected to go to the bathroom during this time. This has several negative impacts. First is the requirement that the pet be leashed at all times, which means that in addition to attempting to pick up the waste in a sanitary manner, it must be done one handed while the other hand holds a leash which is being tugged upon by an animal eager to leave the  
10 immediate area quickly. Thus large tools or two handed tools are almost out of the question. A second issue is that in addition to picking up the waste in public, it must be conveyed thereafter for a distance in a sanitary manner. This can prevent pet owners from carrying out errands during their walks.

The tried and true solution is the inside out plastic bag which is used as a glove while  
15 bending over, then the bag is reverted to normal configuration with the pet waste inside. This does, however, end up with the user conveying a plastic bag of pet waste until at least the next trash receptacle.

Certain patent references fall into a group which consists of patents on devices so dissimilar from the present invention as to be of little or no references. US Patent No. 6,196,600  
20 issued Mar. 6, 2001 to Miller for ANIMAL WASTE SCOOPING AND DISPOSAL DEVICE, and US Patent No. 6,068,311 issued May 30, 2000 to Jones for SANITARY PICKUP DEVICE, and US Patent No. 6,003,913 issued Dec. 21, 1999 to Flumiani for REFUSE COLLECTION DEVICE fall into this category. They provide some overview of what is happening in the area.

A second group of patents are ones which cover devices of the “hand tool” or “pickup” type. US Patent No. 5,642,911 issued Jul. 1, 1997 to Gatch for LITTER RETRIEVING TOOL, and US Patent No. 4,422,681 issued Dec. 27, 1983 to Laroche for ANIMAL EXCREMENT PICKER, and US Patent No. 4,081,192 issued Mar. 28, 1978 to Jones for TRASH PICKER, and

5 US Patent No. 3,633,958 issued Jan. 11, 1972 to Mesrobian for LEAF PICKER all fall into this category. All of these devices have differences from the hand tool to the present invention and more importantly lack cooperation structures for a sealed receptacle cup and thus for easy one handed usage. For example, the ‘911 patent teaches a device which may allow a dangling bucket but must be used two handedly with the bucket, and does not have any means to carry a sealed

10 sanitary container, nor allow real cooperation between a bucket and the device. The ‘681 patent teaches a device with a magnetically attached plate across the bottom: the user is expected to pry off the plate before each use, and it can be used only one time before it must be cleaned. It further has a moving plate with spikes. The ‘192 patent shows another device with a moving plate with spikes. The ‘958 patent teaches a device with no sanitary container.

15 A third group of patents are ones that generally concern encasement or boxing of pet waste. US Patent No. 6,039,369 issued Mar. 21, 2000 to Stahovic for ANIMAL EXCREMENT COLLECTION DEVICE AND COLLECTING TOOL teaches a device with two hand tool parts and a bag suspended from one of them. The user is supposed to scrape the animal excrement free from the first tool and into the bag. This and other “bag” type patents teach little or nothing

20 about the present device.

US Patent No. 5,702,137 issued Dec. 20, 1997 to Gutierrez for STAFF OR STICK FOR RECOLLECTION ORGANIC WASTE FROM DOMESTIC ANIMALS SUCH AS DOGS OR CATS teaches a box having a pie shaped cross section (see Figure 7) which open up like a pair

of jaws and then closes. While this one at least encases a single instance of animal waste, it does not disclose an independent cup and a sterile seal, even when combined with a patent from the previous group.

US Patent No. 5,628,537 issued May 13, 1997 to Keimer for PET WASTE PICKUP  
5 AND DISPOSAL APPARATUS is similar to the '137 patent (just previous), i.e. it has jaws which open and close. This is the only one with a container, but the container is really for the entire device, it is not a solid and sealed pet waste receiver.

Finally, US Patent No. 4,286,816 issued Sep. 1, 1981 to Tobias for DEVICE FOR  
COLLECTION AND DISPOSAL OF PET WASTE at least teaches some sort of cup shaped  
10 portion of the hand tool. However, this cup is obviously not solid and detachable; it is used differently, and has numerous structural differences. In fact, this is actually another "bag" type device, unrelated to the present invention. Note that Figure 2 shows springs and what appear to be "spikes" at the bottom. In fact, this is a sharpened grill work, not spikes: the user is expected to push the pet waste through the grill work.

15 It would be advantageous to eliminate some of the moving parts of the reference patents, in order to provide simpler, more efficient and less expensive operation.

It would further be advantageous to provide a "multi-use" capability: certain references do not allow more than one use before the device must be cleaned off.

It would be advantageous to have a device which may be used one handed.

20 It would be further advantageous to have a device which could be used one handedly to both pick up and sanitarily contain pet wastes.

It would also be advantageous if such a device may be self cleaning, with the potentially dirty portions of the device safely contained so that externally no pet waste matter might be

found.

It would be advantageous to have a device, which utilizes and incorporates a receptacle cup with a sealed upper lip to confine odors, a plastic bag to hold the waste, a removable bottom on the receptacle cup for removing the bag and detents inside the receptacle cup to attach and disengage the receptacle cup from the hand tool.

Finally, it would be advantageous to provide a device which can be used in any of three modes: with a sealed cup only, with a cup and bag, or as a cylindrical bag holder only.

## SUMMARY OF THE INVENTION

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### General Summary

The invention comprises a two part device in which a pick up tool cooperates with a sanitary container to allow one handed pickup and containment of pet wastes.

A first handle permits that a force be placed against an opposing handle, the first handle connects to a solid tube inside a hollow tube to which the second handle is attached.

Disengaging springs with stops inside the hollow tube and on the solid tube in turn push a shuttle plate over spikes that are embedded on a fixed plate attached to the hollow tube; the spikes may impale animal waste to be collected and placed in a plastic-bag-lined receptacle cup (the sanitary container), the cup has a removable bottom and a seal on the upper lip for confining materials and odors therewithin.

The shuttle plate engages detents located on the interior of the receptacle cup, extending the shuttle plate downwards in reference to the spikes and thus expanding a spring inside the hollow tube. The spring urges the shuttle plate upwards against the detents and the bottom of the

fixed plate downwards against the lip of the cup, resulting in the cup and hand tool portion being clamped together, this may hold the sanitary waste pickup device to the receptacle cup and confine the animal waste in the container or in the plastic bag. The plastic bag may be released through a removable bottom of the cup, or by releasing the cup from the pick-up device and disposing of the bag manually. The sanitary waste pickup device may disengage any animal waste from the spikes by motion of the shuttle plate from its neutral/medial/rest position relatively down the spikes to the very tip of the spikes. The return spring then returns the shuttle plate to a neutral position in the solid tube and resumption of animal waste pickup may continue, or the device may be left with the shuttle plate urged upwards against the bottom of the 10 detente with the device sealed.

#### Summary in Reference to Claims

It is therefore one aspect, advantage, objective and embodiment of the invention to provide a sanitary waste pickup device comprising: a receptacle cup with a depth, a bottom, an 15 interior surface, a lip, and at least one detente on the interior surface located at approximately one half the depth of the receptacle cup; a shuttle plate dimensioned and configured to moveably accept the spikes through a plurality of apertures, each spike passing through an aperture of the shuttle plate, the shuttle plate dimensioned and configured so it may pass the detente on the cup if a first force is applied to the shuttle plate, and may not pass the detente if a second lesser force 20 is applied; a fixed plate with embedded parallel spikes projecting therefrom; a void at the center of the fixed plate, a solid tube passing therethrough, the solid tube having a first end attached to the shuttle plate and a second end having a first handle attached thereto, the solid tube having a first stop; a hollow tube attached to the fixed plate and surrounding the solid tube slidably, and

having at least first and second catches and at least two springs, disposed within the hollow tube, allowing tension and release against the first catch during relative movement of the solid tub within the hollow tube stops; the first handle, forming a physical unity whereby the solid tube, and shuttle plate urging the solid tube downwards sets in motion the shuttle plate to scrape clean  
5 the spikes as the shuttle plate moves downwards; and a second handle attached to the hollow tube.

It is therefore a second aspect, advantage, objective and embodiment of the invention to provide a sanitary waste pickup device wherein the bottom of the receptacle cup is removable.

10 It is therefore another aspect, advantage, objective and embodiment of the invention to provide a sanitary waste pickup device wherein the invention is a metal material.

It is therefore another aspect, advantage, objective and embodiment of the invention to provide a sanitary waste pickup device wherein the invention is a plastic material.

It is therefore another aspect, advantage, objective and embodiment of the invention to provide a sanitary waste pickup device wherein the invention is a wood material.

15 It is therefore another aspect, advantage, objective and embodiment of the invention to provide a sanitary waste pickup device wherein the receptacle cup is cylindrical.

It is therefore another aspect, advantage, objective and embodiment of the invention to provide a sanitary waste pickup device wherein the receptacle cup is square in horizontal cross-section.

20 It is therefore another aspect, advantage, objective and embodiment of the invention to provide a sanitary waste pickup device wherein the second stop prevents the shuttle plate from passing beyond the ends of the spikes.

It is therefore another aspect, advantage, objective and embodiment of the invention to

provide a sanitary waste pickup device wherein a plastic bag lines the cup.

It is therefore another aspect, advantage, objective and embodiment of the invention to provide a sanitary waste pickup device wherein the first handle is horizontal and attached to the solid tube at an intermediate point of the first handle.

5 It is therefore another aspect, advantage, objective and embodiment of the invention to provide a sanitary waste pickup device wherein the second handle may encircle the first handle.

It is therefore another aspect, advantage, objective and embodiment of the invention to provide a sanitary waste pickup device further comprising: a seal disposed at the lip of the cup or the fixed plate.

10 It is therefore another aspect, advantage, objective and embodiment of the invention to provide a sanitary waste pickup device further comprising: a second detente located on the interior surface of the cup.

15 It is therefore another aspect, advantage, objective and embodiment of the invention to provide a sanitary waste pickup device wherein the second detente is located nearer to the lip of the cup than the first detente.

It is therefore another aspect, advantage, objective and embodiment of the invention to provide a sanitary waste pickup device further comprising: a seal located at the lip of the cup or on the fixed plate.

20 BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a front view of the first embodiment of the invention, showing the side view of the sanitary waste pickup device.

Fig. 2 is a front view of the second embodiment of the invention, showing interior sections via transparent hollow tube of the sanitary waste pickup device.

Fig. 3 is a top view of the first embodiment of the invention, showing the top view of the sanitary waste pickup device with certain parts omitted.

5 Figs. 4a through 4f are front and right side views of various elements of the first embodiment of the invention, showing the outer hollow tube and solid tube for the sanitary waste pickup device.

10 Figs. 5a-5c are top and right side views of parts the first embodiment of the invention, showing the fixed plate with embedded spikes and side view of a spike of the sanitary waste pickup device.

Fig. 6 is a bottom view of elements the first embodiment of the invention, showing the fixed plate with embedded spikes of the sanitary waste pickup device.

Figs. 7a and 7b are top and right side views of the first embodiment of the invention, showing the shuttle plate with a plurality of apertures for the sanitary waste pickup device.

15 Fig. 8 is a front side view of the first embodiment of the invention, showing the receptacle cup with detente.

Fig. 9 is a top side view of the first embodiment of the invention, showing the top view of the receptacle cup with seal.

20 Fig. 10 is a cross-sectional side view of the preferred embodiment of the invention, with a double detent cup employing a plastic bag.

Fig. 11 is a cross-sectional side view of the preferred embodiment of the invention, with a double detent cup without a bag.

Fig. 12 is a bottom view of the fixed plate with embedded spikes, showing the seal of the

preferred embodiment.

Fig. 13 is a cross-sectional side view of an alternative embodiment with detentes of an alternative type, showing the device in use without the bottom.

5 Fig. 14 is a cross-sectional side view of the receptacle cup only showing the cup in the middle of disassembly.

Fig. 15 is a side cross-sectional view of the hand tool portion in the extreme raised position.

Fig. 16 is a side view of the handles, partially cross-sectional, showing the race of the side rail.

10 Fig. 17 is a perspective view of the handles.

#### INDEX TO REFERENCE NUMERALS

Ref. 50	Handle.
Ref. 51	Handle for opposing pressure.
15 Ref. 52	Solid tube.
Ref. 53	Hollow tube.
Ref. 54	Fixed plate.
Ref. 55	Spikes.
Ref. 56	Shuttle plate with a plurality of apertures.
20 Ref. 57	Upper spring inside hollow tube.
Ref. 58	Lower spring inside hollow tube.
Ref. 59	Handle bolt.
Ref. 60	Receptacle cup with seal.

	Ref. 61	End of handle.
	Ref. 62	End of solid tube.
	Ref. 63	End of hollow tube.
	Ref. 64	Spike terminations
5	Ref. 65	Fixed plate hole.
	Ref. 66	Mounting bolt.
	Ref. 67	Apertures.
	Ref. 68	Receptacle cup.
	Ref. 69	Removable bottom.
10	Ref. 70	Receptacle cup Seal.
	Ref. 71	Stops.
	Ref. 72	Plastic bag.
	Ref. 73	Detente.
	Ref. 74	Base of embedded spikes.
15	Ref. 100	First detente
	Ref. 102	Second detente
	Ref. 104	Plastic Bag
	Ref. 106	Cylindrical Cup Portion
	Ref. 108	Cup Bottom
20	Ref. 110	Shuttle Plate
	Ref. 110'	Shuttle Plate 110 in raised position
	Ref. 110"	Shuttle Plate 110 in intermediate position
	Ref. 112	Fixed Plate

	Ref. 114	Spikes
	Ref. 116	Seal
	Ref. 118	Movable Handle
	Ref. 120	Lower Handle
5	Ref. 122	Upper Handle
	Ref. 124	Side Rail
	Ref. 126	Inner Tube
	Ref. 128	First Spring
	Ref. 130	Second Spring
10	Ref. 132	First Stop
	Ref. 134	Second Stop
	Ref. 136	Third Stop
	Ref. 138	Clip
	Ref. 140	Outer Tube
15	Ref. 142	Apertures
	Ref. 144	Peripheral Region of Fixed Plate, 112 Bottom

#### DETAILED DESCRIPTION

The first embodiment of the sanitary waste pickup device is the front view of FIG. 1.

20 Materials of the invention may be a plastic polymer, metal or combination. The invention may also be wooden materials, composites, etc. In the embodiment of Fig. 1, and in the best mode now contemplated (Figs. 10-12), certain materials are transparent to allow a view of the working of the device (for example, the hollow tube 53) may be transparent to show any springs inside,

while other parts of the invention are not transparent (for example, the sanitary container of later diagrams) so as to occlude any view of the contents of that portion of the device. Embodiments have both shuttle plate **56** and fixed plate **54** transparent, so that a user may look directly through these plates in aiming the device.

5 A horizontally placed handle **50** is attached and may be connected by means of a bolt, an adhesive, pressure fit, unitary construction, etc, to a vertical solid rod **52** at the mid point of the first handle **50**. A second handle **51** may vertically encircle the first handle **50** or in other embodiments may parallel it or be otherwise arranged for one handed pressure on the two handles, and pressure may be applied between the two to urge the solid tube **52** up or down in  
10 relation to hollow tube **53**. The second handle **51** is connected by the same devices listed in reference to the solid tube **52** or by equivalent devices such as screws or soldering to hollow tube **53** that surrounds the solid tube **52** slidably. The hollow tube **53** is connected to the fixed plate **54** via the same means or equivalents. Parallel spikes **55** are embedded into the fixed plate **54** and project therefrom in the downward direction, the spikes **55** may be dimensioned and  
15 configured so as to be moveably accepted by the shuttle plate **56** that may be attached to the solid tube **52**.

Solid tube **52** may advantageously be itself hollow in alternative embodiments, or may be a rod, etc.

20 The second embodiment of the device is similar to the first embodiment but features spring action to maintain a closure of the device with the cup portion (FIG. 8) of the device. A front view of the second embodiment of the invention shown in FIG. 2 shows a transparent plastic material used for the hollow tube **53** that reveals the interior where springs **57, 58** and stops **71** are employed. As pressure is applied between the first and second handles **50, 51** the

movement of the solid tube **52** is urged against the tension in spring **58** and against the compression in spring **57**. The upward movement of the first handle **50** and the solid tube **52** pulls the shuttle plate **56** towards the fixed plate **54** thus further exposing parallel, spaced spikes **55** for potentially impaling waste, leaves, etc. The shuttle plate **56** is dimensioned and  
5 configured to moveably accept the spikes **55** through the apertures **74**. Pressure is thus placed on spring **57**, in the upper part of the hollow tube **53**, offered by the coming together of the first handle **50** and second handles **51**. Release of pressure between the handles **50, 51** releases the tension in the spring **57** and the action in the hollow tube **53** returns shuttle plate **56** to a neutral or rest position medial the fixed and distal ends of spikes **55**, and at least partially scrapes clean  
10 the spikes **55** against the shuttle plate. The provision of shuttle plate **56** able to reach the extreme ends of spikes **55** is advantageous: flush to the bottom, complete cleaning of the length of the spike is permitted.

In embodiments, the thickness of shuttle plate **56** may be increased either across substantial areas, or locally about the apertures. This allows the ends of spikes **55** to actually be  
15 entirely shrouded when shuttle plate **56** is extended fully, thus increasing cleaning action even further.

Obviously, wider apertures allow easier relative motions and minimize the risk of jamming. Narrower apertures provide a better scraping action of the spikes.

On the other hand, when handles **50, 51** are forced apart (when handle **50** is forced in a  
20 downwards direction as sensed in Fig. 2), spring **57** is placed in tension and spring **58** is placed in compression. Shuttle plate **56** is forced downwards relative to spikes **55**, thus further scraping clean the spikes **55**. Obviously release of this force allows springs **57, 58** to return to the rest position.

The top view of the sanitary waste pickup device FIG. 3 shows the first handle 50 and its relative size to the transparent fixed plate 54 and the receptacle cup 60. FIG. 3 also indicates the handle bolt 59 and the base of the embedded spikes 74.

5 The first handle 50, solid tube 52, and hollow tube 53 are shown in FIGS. 4a-4f. The materials used in these elements of the sanitary waste pickup device may be a plastic polymer, metal or a combination of both materials. The slidable relationship between the solid tube 52 and the hollow tube 53 may warrant a smooth surface on the outer surface of the inner tube 52 and the outer tube 53. To repeat, solid (inner) tube 52 may in embodiments be hollow.

10 The top side and right side views of the fixed plate 54 and the right side view of the spike 55 are seen in FIG 5. The spikes 74 are embedded to the base of the fixed plate 54 and may be adhered to the fixed plate 54 via glue, solder, unitary construction, pressure fit, or otherwise attached together. The spikes are parallel, dimensioned and configured and may be moveably accepted into and through the shuttle plate FIG.1, Ref. 56. The fixed plate hole 65 at the center of the fixed plate 54 allows the solid tube 52 to pass slidably therethrough.

15 The bottom view of FIG. 6 shows the fixed plate 54, the spike terminations 64 (the distal ends of spikes 55) on the fixed plate 54 as well as the fixed plate hole 65. Figs. 7a and 7b are top and right side views of the first embodiment of the invention, showing the shuttle plate 56 with a plurality of apertures 67 for the sanitary waste pickup device.

20 Fig. 8 is a front side view of the first embodiment of the invention, showing the receptacle cup with detente. The part of the invention is important to understanding of the entire device. Sanitary containers are necessary to allow sanitary transportation of pet waste after collection, and one handed use is important so as to allow usage while holding a leash. Both objectives are fulfilled by means of the close physical cooperation between the hand tool part of

the invention discussed previously (in particular, the shuttle plate 56) and the receptacle cup 68.

Cup 68 has in the first embodiment shown and in the presently preferred embodiment (Figs. 10-

12) has removable bottom 69 and seal 70 (see Fig. 9). Detente 73 located on the inner surface of

the cup 68 is dimensioned and configured very carefully in relation to the size and medial rest

5 position of shuttle plate 56. Shuttle plate 56 may pass detente 73 upon application of a first

force. However, application of a second lesser force does not allow shuttle plate 56 to pass

detente 73. This second lesser force may, for example be the force exerted by springs 57, 58

when those springs are extended/compressed sufficiently to allow shuttle plate 56 and fixed plate

54 to relatively separate by a modest amount. In storage, the hand tool portion of the device may

10 be inserted into cup 68 and handle 50 pushed downwards, that is, in the direction causing the

plates to separate slightly. Shuttle plate 56 may then pass over detente 73, and upon release of

the handle, springs 57, 58 urge the periphery or edge of shuttle plate 56 upwards against the

bottom of detente 73. This also urges the periphery or edge of fixed plate 54 downwards against

seal 70 disposed at the lip of cup 68. The combined pressure between the two plates thus secures

15 the hand tool portion of the device to the cup portion of the device and the second lesser pressure

exerted by the springs 57, 58 is insufficient to dislodge this arrangement, on the contrary, the

spring action holds the parts disposed together, abutting at the peripheries of the plates.

Detente 73 may be a single bump, catch, stop or similar protrusion from the interior of

cup 68 or it may be ridge around the interior, or plurality of such bumps, or other equivalent

20 devices.

The proportions of the cup, spikes, springs and stops may allow the shuttle plate to be

stopped from further downward motion beyond the distal ends of the spikes. It will be

appreciated that pushing the shuttle plate beyond the spike ends might allow it to become

misaligned, so that it would require manual manipulation to return the spikes to the apertures.

Fig. 10 is a cross-sectional side view of the presently preferred embodiment and best mode now contemplated for practicing of the invention, with a double detent cup employing a plastic bag.

First detente 100 acts to secure shuttle plate 110 as discussed in reference to the first detente 73 of the first embodiment shown in Figs 1 through 9. Second detente 102, however, holds shuttle plate 112 in a loose position which does not seal the receptacle cup lip against the fixed plate. This arrangement has the following advantage. In use, the owner may easily urge shuttle plate 112 into the loose intermediate position between the two detentes 100, 102. The plastic bag 104 is then not secured at any location: it is not trapped between fixed plate 112 and the lip of the receptacle cup, nor is it held at any detente. If cup bottom 108 is removed, bag 104 may freely “flow” out between the detents 100, 102, and fall away under its own weight.

The three modes of operation of the device (cup only, cup and bag, or cylindrical cup portion and bag) may now be seen more clearly as well. If cup bottom 108 is removed, cylindrical portion 106 remains, with detentes 100, 102. The use of the device remains the same but the capacity may be substantially increased merely by increasing the size of bag 104 (substituting a larger bag). Fig. 13 is a cross-sectional side view of an alternative embodiment with detentes of an alternative type, showing the device in use without the bottom. Fig. 14 is a cross-sectional side view of the receptacle cup only showing the cup in the middle of disassembly from one mode to another. In the embodiment pictured, a small groove 150 and tongue 152 cooperate to cause the joining.

Additional advantages of the preferred embodiment may also be seen in Fig. 10. Seal 116 is borne at the periphery of fixed plate 112, in a manner seen more clearly in Fig. 12. Fig.

**12** is a bottom view of the fixed plate **112** with embedded spikes **114**, showing the seal **116** of the preferred embodiment. Apertures **142** may be seen, as well as peripheral plate region **144**. This peripheral region is an annular area on the bottom surface of fixed plate **112** which provides a surface for seal **116**. Seal **116** may be seated in a seal race (a shallow circular groove), may be adhered by glue or other means to fixed plate **112** or may otherwise be secured.

5        Returning to Fig. **10**, another advantage of the best mode now contemplated is the use of three handles: top handle **122**, movable handle **118**, and bottom handle **120**. The device is specifically designed for easy, sanitary one-handed use. Fig. **16** is a side view of the handles, partially cross-sectional, showing the race **154** of the side rail. Fig. **17** is a perspective view of  
10      the handles. The user may apply force sufficient to bring the shuttle plate above the first detente and below the second detente. This in turn results in the hand tool and cup being very loosely attached together, with the shuttle plate free to move back and forth between the two detents. Additional positions may be achieved. When movable handle **118** is compressed (squeezed, urged) with/to top handle **122**, shuttle plate **110** rises to its highest position. When movable  
15      handle **118** is squeezed with bottom handle **120**, shuttle plate **110** is lowered to its lowest position. Release causes the device, handles, springs and shuttle plates, to return to the relaxed, rest or intermediate position. Provision of three handles expedites all these motions, as the human hand is adapted to a one-handed compression of two handles towards each other, and ill adapted to a one-handed separation of two handles. Side rail **124** may be used to orient and  
20      retain the handles in their respective configurations: it may be structural, or it may enclose the ends of movable handle **118** in a race/groove. Fig. **11** is a cross-sectional side view of the preferred embodiment of the invention, with a double detent cup without a bag, showing the results of this. Shuttle plate **110** is shown in the “sealing” position in which it is extended to the

extreme ends of spikes **114** (cleaning the entire length of spikes **114** but not slipping off and out of alignment therewith). Shuttle plate **110'** shows the plate in an upward position above detente **102**. Shuttle plate **110"** shows the plate in an intermediate position between detentes **100, 102**. It will be appreciated that there is only one shuttle plate **110**, the use of prime and double prime notation (**110', 110"**) and the ghost representation of shuttle plate **110** provides a clear comparison of plate locations. Fig. **15** is a side cross-sectional view of the hand tool portion in the extreme raised position, with the compression/extension of the two springs now reversed.

Figs **10** and **11** show yet another advantage of the presently preferred embodiment, the minimization of spring and stop technology within outer tube **140**. Spring **128** is compressed against stop **136** by stop **134** when shuttle plate **110** is raised, while spring **130** is compressed against stop **132** by the stop **134** when shuttle plate **110** is lowered: this latter configuration may be seen in Fig. **11**, while the rest configuration with shuttle plate **110** at its resting/intermediate position may be seen in Fig. **10**.

A final aspect of the best mode now contemplated is the provision of clip **138** on the side of outer tube **140**. This clip may advantageously be used to hold spare plastic bags, to hold a pet leash, or may even be configured and dimensioned to hold cup bottom **108** when the device is used in a mode which does not employ it as a cup bottom.

However, as noted second detente may be employed to profitably increase the flexibility of use of the preferred embodiment. Second detente **102** may as stated previously and shown herein be located above first detente **100** at a location higher on the interior surface of cylindrical cup part **106**.

A bag may be employed as a liner in any of the embodiments of the invention, but in the two detente embodiment, the removable bottom may be taken off, exposing the bottom of the

bag. When the shuttle plate is disposed between the two detents, a small gap will exist between the interior surface of the cup and the periphery/edge of the shuttle plate, through which gap the bag may freely flow downwards and thus remove itself from the interior of the cup without further user intervention. The user may hold the entire device over a trash container/dust bin,

5 remove the bottom, and pull the handles sufficiently to bring the shuttle plate above one detente and below the other. The weight of any materials in the bag will then pull the bag from between the fixed plate and seal (which will not be in contact in the loosely attached position), past the first detente, past the shuttle plate edge, past the second detente, and down into the trash can: no two components of the two parts of the device will be in contact together.

10 A seal may be incorporated for sanitation, and to additionally prevent the escape of odors, at the location at which inner tube 126 passes through fixed plate 112.

Finally, in another embodiment, there may be no bottom whatsoever: the receptacle may be a cylinder sealed at the top by the seal, with a plastic bag to keep wastes contained at the bottom end.

15 The nature of the spikes may also vary to suit the embodiment, usage and manufacturing needs. The spikes may be generally cylindrical, tapered, may have flat, rounded or pointed ends, and so on. The spikes may have a round, elliptical or oval cross-section, a square cross-section, triangular, polygonal, or may comprise an I-beam, H-beam, X-beam, T-beam or similar irregular configuration.

20 To use the device for waste collection, the device, both major components attached together in storage position, may be placed on the ground with the cup bottom in a clean location. The user will remove the hand tool portion by squeezing the handles together, thus applying a force sufficient to lift the shuttle plate past the one or more detents of the embodiment

utilized and clear the hand tool from the cup. While squeezing to bring the shuttle plate relatively high on the spikes (or even to the underside of the fixed plate), the device is stabbed onto the material to be cleaned up: leaves, litter, pet waste, etc. The device is then returned to the cup, where the squeeze of the handles is reversed: the shuttle plate is forced downwards. It

5 may pass over the one or more detents until its maximum downward extension is reached and the materials impaled on the spikes expelled therefrom. Upon release of the handles, the shuttle plate will attempt to return to rest position, bumping into the detents. The fixed plate will be drawn downwards to impact the lip of the cup and the hand tool and cup will once again be in storage position, locked together. Wastes inside the container will be sanitarily isolated in a

10 closed space with no air gaps to allow escape of odors, insects, bacteria, viruses, etc.

The present invention has been disclosed so as to allow one skilled in the art to practice the invention without undue experimentation, but nothing in this disclosure is to be taken to limit the scope of the invention: the scope of the invention may be understood from the appended claims only. The invention as disclosed herein is subject to many modifications, equivalents, 15 improvements, and substitutions without departing from the scope of the invention as claimed below.